

IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A spring structure formed on a substrate made from a first material and having a first surface, the spring structure comprising:

a post formed from a second material and extending from the first surface of the substrate, the post having an upper surface that is displaced from the first surface of the substrate by a predetermined distance;

a spring metal finger having an anchor portion attached to the upper surface of the post such that the anchor portion is separated from the first surface of the substrate by the predetermined distance, the spring metal finger also having a free portion extending over the substrate, the free portion having opposing first and second surfaces; and

a plated metal layer including a first layer formed on both of the first surface of the free portion of the spring metal finger and a second layer formed on the second surface s of the free portion of the spring metal finger;

wherein both the first layer and the second layer of the plated metal layer has have a thickness that is both smaller than the predetermined distance, and greater than a thickness of the spring metal finger.

2. (original) The spring structure according to Claim 1, wherein the predetermined distance is greater than two times larger than the thickness of the plated metal layer.

3. (original) The spring structure according to Claim 1, wherein the post comprises at least one of copper and nickel.

4. (currently amended) The spring structure according to Claim 1, A spring structure formed on a substrate made from a

first material and having a first surface, the spring structure comprising:

a post formed from a second material and extending from the first surface of the substrate, the post having an upper surface that is displaced from the first surface of the substrate by a predetermined distance;

a spring metal finger having an anchor portion attached to the upper surface of the post such that the anchor portion is separated from the first surface of the substrate by the predetermined distance, the spring metal finger also having a free portion extending over the substrate, the free portion having opposing first and second surfaces; and

a plated metal layer formed on both of the first and second surfaces of the free portion of the spring metal finger;

wherein the plated metal layer has a thickness that is smaller than the predetermined distance, and

wherein the plated metal layer includes a curved portion extending from the first surface of the substrate to the free portion of the spring metal finger.

5. (original) The spring structure according to Claim 1, further comprising a plating electrode formed between the post and the spring metal finger.

6. The spring structure according to Claim 1, A spring structure formed on a substrate made from a first material and having a first surface, the spring structure comprising:

a post formed from a second material and extending from the first surface of the substrate, the post having an upper surface that is displaced from the first surface of the substrate by a predetermined distance;

a spring metal finger having an anchor portion attached to the upper surface of the post such that the anchor portion is separated from the first surface of the substrate by the predetermined distance, the spring metal finger also having a

free portion extending over the substrate, the free portion having opposing first and second surfaces; and

a plated metal layer formed on both of the first and second surfaces of the free portion of the spring metal finger; and

a release material layer formed between the upper surface of the post and the anchor portion of the spring metal finger,

wherein the plated metal layer has a thickness that is smaller than the predetermined distance.

7. (original) The spring structure according to Claim 1, wherein a tip located adjacent to an end of the free portion of the spring metal finger is exposed through the plated metal.

8. (original) The spring structure according to Claim 7, wherein the tip is an out-of-plane structure extending perpendicular to a surface of the spring metal finger.

9. (original) The spring structure according to Claim 1, further comprising a plurality of tips located adjacent to an end of the free portion of the spring metal finger.

10-16. (canceled)

17. (original) A spring structure formed on a substrate having a first surface, the spring structure comprising:

a spring metal finger having an anchor portion attached to the first surface of the substrate, the spring metal finger also having a free portion extending over the substrate; and

a plated metal layer formed on both of the first and second surfaces of the free portion of the spring metal finger;

wherein the substrate defines a trench located below the free portion of the spring metal finger and shaped such that when the free portion of the spring metal finger is deflected toward the substrate, the free portion enters the trench without contacting the first surface of the substrate.

18. (original) The spring structure according to Claim 17,  
wherein the trench defines a depth, and  
wherein the plated metal layer has a thickness that is  
smaller than the depth of the trench.

19. (original) The spring structure according to Claim 18,  
wherein the depth is greater than two times larger than the  
thickness of the plated metal layer.

20. (original) The spring structure according to Claim  
16, wherein the plated metal layer includes a curved portion  
extending from the free portion of the spring metal finger into  
the trench.

21. The spring structure according to Claim 1, further  
comprising a release material layer formed between the first  
surface of the substrate and the anchor portion of the spring  
metal finger.

22. (original) The spring structure according to Claim 16,  
wherein a tip located adjacent to an end of the free portion of  
the spring metal finger is exposed through the plated metal.

23. (original) The spring structure according to Claim 22,  
wherein the tip is an out-of-plane structure extending  
perpendicular to a surface of the spring metal finger.

24. (original) The spring structure according to Claim 16,  
further comprising a plurality of tips located adjacent to an end  
of the free portion of the spring metal finger.

25-30. (canceled)

31. (original) A spring structure formed on a substrate having a first surface, the spring structure comprising:

a spring metal finger including:

an anchor portion attached to the first surface of the substrate,

an intermediate portion extending at a first angle from the anchor portion, the intermediate portion having a first end connected to the anchor portion and a second end located a predetermined distance away from the first surface of the substrate, and

a bent free portion having a first portion extending from the second end of the intermediate portion at a second angle; and

a plated metal layer formed on the free portion of the spring metal finger,

wherein the plated metal layer has a thickness that is smaller than the predetermined distance.

32. (original) The spring structure according to Claim 31, wherein the predetermined distance is greater than two times larger than the thickness of the plated metal layer.

33. (original) The spring structure according to Claim 31, wherein the plated metal layer includes a curved portion extending from the first surface of the substrate along the intermediate portion to the free portion of the spring metal finger.

34. (currently amended) The spring structure according to Claim 31, further comprising a release material layer formed between the first surface of the substrate and the anchor portion of the spring metal finger.

35. (original) The spring structure according to Claim 31, wherein the spring structure further comprises a stress-balancing pad formed on the second end of the intermediate portion and the

first end of the free portion, wherein the stress-balancing pad has a second internal stress gradient that is different from the first internal stress gradient.

36. (original) The spring structure according to Claim 35, wherein the anchor portion of the spring metal finger has a first internal stress gradient including compressive layers adjacent the substrate and tensile layers adjacent the stress-balancing pad, and the stress-balancing pad has a second internal stress gradient that is different from the first internal stress gradient.

37. (original) The spring structure according to Claim 35, wherein the first internal stress gradient includes compressive layers adjacent the substrate and tensile layers adjacent the stress-balancing pad, and wherein the second internal stress gradient includes tensile layers adjacent the compressive layers of the spring metal island, and tensile layers at an upper end of the stress-balancing pad.

38. (original) The spring structure according to Claim 31, wherein a tip located adjacent to an end of the free portion of the spring metal finger is exposed through the plated metal.

39. (original) The spring structure according to Claim 31, wherein a tip located adjacent to an end of the free portion of the spring metal finger includes an out-of-plane structure extending perpendicular to a surface of the spring metal finger.

40. (original) The spring structure according to Claim 31, further comprising a plurality of tips located adjacent to an end of the free portion of the spring metal finger.

41-50 (canceled)

51. (withdrawn) A spring structure formed on a substrate made from a first material and having a first surface, the spring structure comprising:

a spring metal finger having an anchor portion attached to the substrate, the spring metal finger also having a free portion bending away from the substrate, the free portion having an upper surface facing away from the first surface of the substrate, the spring metal finger also having longitudinal edges; and

a plated metal layer formed only on the first surface of the free portion of the spring metal finger between the first and second edges.

52. (withdrawn) The spring structure according to Claim 51, further comprising a non-conductive layer formed on a lower surface of the spring metal finger.

53. (withdrawn) The spring structure according to Claim 51, further comprising a plating electrode formed between the first surface of the substrate and the anchor portion of the spring metal finger.

54. (withdrawn) The spring structure according to Claim 51, further comprising a release material layer formed between the first surface of the substrate and the anchor portion of the spring metal finger.

55. (withdrawn) The spring structure according to Claim 51, wherein a tip located adjacent to an end of the free portion of the spring metal finger is exposed through the plated metal.

56. (withdrawn) The spring structure according to Claim 51, wherein a tip located adjacent to an end of the free portion of the spring metal finger includes an out-of-plane structure extending perpendicular to a surface of the spring metal finger.

57. (withdrawn) The spring structure according to Claim 51, further comprising a plurality of tips located adjacent to an end of the free portion of the spring metal finger.

58-67. (canceled)